

## CLAIMS

### **Listing of Claims:**

Claims 1-122 (cancelled and withdrawn).

Claims 123-142 (cancelled and withdrawn)

143. (new) An impact tool comprising:

a shaft having a striking end and a working end; and

a shaped polymeric material to be impacted disposed adjacent to said striking end to avoid direct metal-to-metal contact,

said shaped polymeric material having a striking end area of said polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area,

said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of appropriate thickness through said cross-sectional area, and of sufficient modulus to enable greater than sixty-seven per cent impact effectiveness compared to a similar impact tool without said polymeric material disposed adjacent to said striking end.

144. (new) The impact tool according to claim 143, further comprising:

said shaped polymeric material being selected to have the further characteristic of redistributing the sound frequency on impact by a driving force on said impact tool to lower frequency ranges than said impact tool without said shaped polymeric material so that resulting sound and vibration is of lower dB, and less harmful frequency ranges to humans.

145. (new) The impact tool according to claim 144 comprising:

said working end being a chisel having a decreased included angle from the standard 65-70 degree included angle; and,

said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of appropriate thickness through said cross-sectional area, and of sufficient modulus to enable greater than sixty-seven per cent impact effectiveness compared to a similar impact tool without said shaped polymeric material and having a standard 65-70 degree included angle.

146. (new) An impact tool comprising:

a shaft having a striking end and a working end; and

a shaped fiber-reinforced polymeric material being a polymeric material to be impacted having a shape and disposed adjacent to said striking end to avoid direct metal-to-metal contact,

said shaped fiber-reinforced polymeric material having a striking end area of said polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area, said shaped fiber-reinforced polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus calculated according to the following formula:

said modulus times said cross-sectional area for transmitting impact upon the impact end area divided by said thickness through said cross-sectional area= X

X to be of a value to enable greater than sixty-seven per cent impact effectiveness compared to a similar impact tool without said fiber-reinforced polymeric material disposed adjacent to said striking end.

147. (new) The impact tool according to claim 146, further comprising:  
said shaped polymeric material being selected to have the further characteristic of redistributing the sound frequency on impact by a driving force on said impact tool to lower frequency ranges than said impact tool without said shaped polymeric material so that resulting sound and vibration is of lower dB, and less harmful frequency ranges to humans.

148. (new) The impact tool according to claims 143-147, further comprising:  
said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

149. (new) The impact tool according to claim 144 comprising:  
said working end being a chisel having a decreased included angle from the standard 65-70 degree included angle; and,  
said shaped fiber-reinforced polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of appropriate thickness through said cross-sectional area, and of sufficient modulus to enable greater than sixty-seven per cent impact effectiveness compared to a similar impact tool without said shaped polymeric material and having a standard 65-70 degree included angle.

150. (new) The impact tool according to claims 143, 144, 145, 146, 147, or 149, further comprising:

said shaped polymeric material being shaped so that no edge or surface is presented having a radius of curvature of less than .02 inches.

151. (new) An impact tool comprising:

a shaft having a striking end and a working end; and

a shaped fiber-reinforced polymeric material being a fiber-reinforced polyamide to be impacted disposed adjacent to said striking end to avoid direct metal-to-metal contact,

said shaped fiber-reinforced polymeric material having a striking end area of said polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area,

said shaped fiber-reinforced polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of appropriate thickness through said cross-sectional area, and of sufficient modulus in order to maintain impact effectiveness while inhibiting failure of said shaped polymeric material upon impact, and further being shaped so that no edge or surface is presented having a radius of curvature of less than .02 inches.

152. (new) The impact tool according to claims 151, further comprising:

said shaped polymeric material having support ridges on said shaped polymeric material circumferentially located around said shaft adjacent to said striking end.

153. (new) The impact tool according to claims 152, further comprising:

said shaped polymeric material being at least one material selected from the group of polymers including polyamide, polyester, polyurethane, polypropylene, polycarbonate.

154. (new) The impact tool according to claims 143, 144, 145, 146, 147, 149, 151, or 152, further comprising:

said shaped polymeric material being comprised of at least one polyamide.

154. (new) The impact tool according to claims 143, 144, 145, 146, 147, 149, 151, or 152, further comprising:

said shaped polymeric material being comprised of at least Zytel® (Trademark of DuPont Corp.) fiber-reinforced nylon.

155. (new) The impact tool according to claims 143, 144, 145, 146, 147, 149, 151, or 152, further comprising:

said shaped polymeric material being shaped to extend beyond the cross-sectional area of said impact end area.

156. (new) The impact tool according to claims 143, 144, 145, 146, 147, 149, 151, or 152, further comprising:

said shaped polymeric material being at least partially surrounding by a grip, and said grip also partially encasing said shaft.

157. (new) The impact tool according to claims 143, 144, 145, 146, 147, 149, 151, or 152,, further comprising:

said shaped polymeric material being at least partially surrounded by a grip, and said grip having a flange for hand protection.

158. (new) The impact tool according to claims 143, 144, 145, 146, 147, 149, 151, or 152, further comprising:

said impact tool having a second shaped polymeric material being shaped to extend beyond the cross-section area of said impact end area and having an aperture exposing said impact end area.

159. (new) The impact tool according to claims 143, 144, 145, 146, 147, 149, 151, or 152, further comprising:

said impact tool having a second shaped polymeric material being shaped to extend beyond the cross-section area of said impact end area and having an aperture exposing said impact end area and said second shaped polymeric material being removable.

160. (new) The impact tool according to claims 143, 144, 145, 146, 147, 149, 151, or 152, further comprising:

said impact tool having a second shaped polymeric material being shaped to extend beyond the cross-section area of said impact end area and having an aperture exposing said impact end area and said second shaped polymeric material being removable; and

said second shaped polymeric material functioning as a cap and being composed of material inhibiting failure, including spalling failure.

161. (new) The impact tool according to claims 143, 144, 145, 146, 147, 149, 151, or 152, further comprising:

said impact tool having a second shaped polymeric material being shaped to extend beyond the cross-section area of said impact end area and having an aperture exposing said impact end area and said second shaped polymeric material being removable; and

said second shaped polymeric material functioning as a cap and being composed of material inhibiting failure, and said material inhibiting failure being selected from the group of polymeric materials reinforced by fiber or mineral.

162. (new) The impact tool according to claims 143, 144, 145, 146, 147, 149, 151, or 152, further comprising:

said impact tool having a second shaped polymeric material being shaped to extend beyond the cross-section area of said impact end area and having an aperture exposing said impact end area and said second shaped polymeric material being removable; and

said second shaped polymeric material functioning as a cap and being composed of material inhibiting failure, said material inhibiting failure being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, or POLYPROPYLENE.

163. (new) An impact tool comprising:

a shaft having a striking end and a working end; and

a shaped fiber-reinforced polyamide material being a fiber-reinforced polyamide to be impacted disposed adjacent to said striking end to avoid direct metal-to-metal contact,

said shaped fiber-reinforced polyamide material having a striking end area of said polyamide material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area,

said shaped fiber-reinforced polyamide material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of appropriate thickness through said cross-sectional area, and of sufficient modulus in order to maintain impact

effectiveness while inhibiting failure of said shaped polymeric material upon impact, and further being shaped so that no edge or surface is presented having a radius of curvature of less than .02 inches and further having support ridges on said shaped polymeric material circumferentially located around said shaft adjacent to said striking end.

164. (new) The impact tool according to claim 163, further comprising:

said shaped polyamide material being shaped to extend beyond the cross-sectional area of said impact end area.

165. (new) The impact tool according to claim 164, further comprising:

said shaped polyamide material being at least partially surrounding by a grip, and said grip also partially encasing said shaft.

166. (new) The impact tool according to claim 165, further comprising:

said shaped polyamide material being at least partially surrounded by a grip, and said grip having a flange for hand protection.

167. (new) The impact tool according to claim 166, further comprising:

said fiber-reinforcedpolyamide material having at least Zytel® (Trademark of Dupont Corp.) fiber-reinforced nylon.

168. (new) The impact tool according to claim 167, further comprising:

said shaped polymeric material being shaped to extend beyond the cross-sectional area of said impact end area.

168. (new) The impact tool according to claim 167, further comprising:

said shaped polymeric material being at least partially surrounding by a grip, and said grip also partially encasing said shaft.

169. (new) The impact tool according to claim 168, further comprising:



said shaped polymeric material being at least partially surrounded by a grip, and said grip having a flange for hand protection.

170. (new) The impact tool according to claim 169, further comprising:

said impact tool having a second shaped polymeric material being shaped to extend beyond the cross-section area of said impact end area and having an aperture exposing said impact end area.

171. (new) The impact tool according to claim 170, further comprising:

said impact tool having a second shaped polymeric material being shaped to extend beyond the cross-section area of said impact end area and having an aperture exposing said impact end area and said second shaped polymeric material being removable.

172. (new) The impact tool according to claim 171, further comprising:

said impact tool having a second shaped polymeric material being shaped to extend beyond the cross-section area of said impact end area and having an aperture exposing said impact end area and said second shaped polymeric material being removable; and

said second shaped polymeric material functioning as a cap and being composed of material inhibiting failure, including spalling failure.

173. (new) The impact tool according to claim 172, further comprising:

said impact tool having a second shaped polymeric material being shaped to extend beyond the cross-section area of said impact end area and having an aperture exposing said impact end area and said second shaped polymeric material being removable; and

said second shaped polymeric material functioning as a cap and being composed of material inhibiting failure, and said material inhibiting failure being selected from the group of polymeric materials reinforced by fiber or mineral.

174. (new) The impact tool according to claim 173, further comprising:

said impact tool having a second shaped polymeric material being shaped to extend beyond the cross-section area of said impact end area and having an aperture exposing said impact end area and said second shaped polymeric material being removable; and

said second shaped polymeric material functioning as a cap and being composed of material inhibiting failure, said material inhibiting failure being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, or POLYPROPYLENE.